

REMARKS/ARGUMENTS

Claims 1-27 are pending in the application. Claims 1, 10, and 19 have been amended to expedite prosecution. Claims 28-30 have been cancelled. Reconsideration is respectfully requested. Applicants submit that the pending claims 1-27 are patentable over the art of record and allowance is respectfully requested of claims 1-27.

Applicants would like to thank Examiner Morrison for holding a telephone interview with their representative, Janaki K. Davda, on Wednesday, January 10, 2007, at 3:00 p.m. EST. During the telephone interview, proposed claim amendments to claim 1 were discussed. No agreement was reached.

Claims 1, 5-6, 8-10, 14-15, 17-19, 23-24, 26-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tandon (U.S. Patent No. 6,233,587) in view of Holenstein et al. (U.S. Pub. No. 2004/0133591). Applicants respectfully traverse.

Amended claim 1 describes registering said user-defined operation with said database, wherein the user-defined operation enables a database operation to be extended with user-customizable features. Said database transaction that includes said database operation is executed. Said database is enabled to operate as said Transaction Manager by means of said Transaction Protocol, wherein said Transaction Manager manages distributed transactions by coordinating decisions about commit or rollback of pending transactions and coordinating failure recovery. Said resource manager is accessed by said database operating as said Transaction Manager. Said user-defined operation is invoked as part of said database transaction. That said user-defined operation has been invoked is recorded with said database. Said invoked and recorded user-defined operation is executed while executing said database transaction. Said computer resource is accessed in response to executing said invoked and recorded user-defined operation by said resource manager, thereby extending said database transaction. In response to performing a commit of said database transaction, a two phase commit of said computer resource accessed by said user-defined operation is coordinated (e.g., Specification, page 6, lines 4-10; 9, lines 4-7). In response to performing a rollback of said transaction, said user-defined operation is included in said rollback (e.g., Specification, page 6, lines 4-10; 9, lines 4-7).

Database transactions associated with highly critical database applications operate reliably by ensuring that transactions are completely performed when committed or fully rolled back if an error occurs during the operation of the transaction, and user-defined operations may perform updates, so it is desirable to be able to extend the operation of database transactions to include the user-defined operations (e.g., Specification, page 2, lines 14-21). Embodiments enable user-defined operations to commit and rollback as part of the database transaction (e.g., Specification, page 3, lines 12-13).

For example, claim 1 describes registering said user-defined operation with said database, wherein the user-defined operation enables a database operation to be extended with user-customizable features (e.g., Specification, page 1, line 32 – page 2, line 2). Also, "said user-defined operation" refers back to "user-defined operation that accesses a computer resource by means of a Transaction Protocol describing a two-phase commit application programming interface (API) that operates between a transaction manager and a resource manager for transaction processing distributed over computer systems". On the other hand, the Office Action cites one or more personality modules that may be registered with a resource manager (Col. 7, lines 43-51). A personality module is a module that maps a set of events to a set of actions (Col. 6, lines 42-43), which does not teach or suggest the claimed user-defined operation that enables a database operation to be extended with user-customizable features and that accesses a computer resource by means of a Transaction Protocol describing a two-phase commit application programming interface (API) that operates between a transaction manager and a resource manager for transaction processing distributed over computer systems.

In addition, claim 1 describes executing said database transaction. The "said database transaction" refers back to "a database transaction to include at least one user-defined operation that accesses a computer resource by means of a Transaction Protocol describing a two-phase commit application programming interface (API) that operates between a transaction manager and a resource manager for transaction processing distributed over computer systems". The Office Action cites Col. 8, lines 10-21, which describe executing local transactions and providing native support for transactions initiated by foreign transactions. There is no mention in the Tandon patent of a database transaction that is extended to include at least one user-defined operation that accesses a computer resource by means of a Transaction Protocol describing a

two-phase commit application programming interface (API) that operates between a transaction manager and a resource manager for transaction processing distributed over computer systems.

Claim 1 describes enabling said database to operate as said Transaction Manager by means of said Transaction Protocol, wherein said Transaction Manager manages distributed transactions by coordinating decisions about commit or rollback of pending transactions and coordinating failure recovery. The Office Action cites, for example, Col. 12, lines 18-28, which describes XA-compliant transaction managers, as teaching this. Applicants' respectfully traverse. At Col. 8, lines 10-14, the Tandon patent describes that the resource manager 200 may be a database manager that manages access to a database (resource 202). That is, the database of the Tandon patent acts as the resource manager that executes local transactions and that provides native support for foreign transaction managers (FIG. 2 of Tandon; Col. 8, lines 16-20), which teaches away from the database operating as said Transaction Manager by means of said Transaction Protocol, wherein said Transaction Manager manages distributed transactions by coordinating decisions about commit or rollback of pending transactions and coordinating failure recovery. For example, with reference to FIG. 2 of Applicants' drawings, there is an XA transaction manager 208, resource managers 221, 224, and a database acting as an XA transaction manager for user-defined operations 229.

Moreover, claim 1 describes accessing said resource manager by said database operating as said Transaction Manager. As described above, the Tandon reference does not teach or suggest that the database operates as said Transaction Manager. Merely indicating that the transaction managers and resource managers are integrated does not teach said database operating as said Transaction Manager.

Claim 1 also describes invoking said user-defined operation as part of said database transaction. The Office Action cites Col. 8, line 42 – Col. 9, line 17 and "resource manager performs corresponding actions" as teaching this. Applicants submit that the cited portion of the Tandon patent merely lists resource manager events and transaction events, but there is no description of invoking said user-defined operation as part of said database transaction.

Claim 1 further describes recording with said database that said user-defined operation has been invoked. The Office Action cites mapping and writing to log at Col. 10, line 12 – Col. 12, line 5 as teaching this. Applicants respectfully traverse. The Tandon patent describes that on transaction prepare begin, the prepare information is written to a log; on transaction commit

begins, a log of changes made by committing transaction to disk is written (Col. 10, line 12 – Col. 12, line 5). There is no teaching or suggestion of recording with said database that said user-defined operation has been invoked.

Claim 1 describes executing said invoked and recorded user-defined operation while executing said database transaction. The Office Action cites Col. 8, line 42 - Col. 9, line 17 and "transaction events" as teaching this. Applicants respectfully traverse. The transaction events of the Tandon patent do not teach or suggest executing said invoked and recorded user-defined operation while executing said database transaction.

The Office Action indicates that the Tandon patent does not explicitly disclose "user-defined . . . wherein the user-defined operation enables a database operation to be extended with user-customizable features", but cites the Holenstein patent application as teaching this in paragraph 379 with "stored procedure". Applicants respectfully traverse. Applicants note that "the user-defined operation" refers back to "user-defined operation that accesses a computer resource by means of a Transaction Protocol describing a two-phase commit application programming interface (API) that operates between a transaction manager and a resource manager for transaction processing distributed over computer systems", and a stored procedure does not teach or suggest such a user-defined operation.

Also, the Office Action notes that the background of Applicants' Specification describes that many databases enable users to extend database operation with user-customizable features. Applicants would like to point out that that the background of Applicants' Specification also describes that "most database products do not extend transaction semantics to user-defined operations" (e.g., Specification, page 3, line 8) and "[i]t would be useful for database products to extend non-proprietary highly reliable database transaction semantics, such as computer transaction protocols, to include user-defined operations that access resources external to the database"(e.g., Specification, page 3, lines 15-22).

Applicants respectfully submit that neither the Tandon patent nor the Holenstein patent application teach or suggest in response to performing a commit of said database transaction, coordinating a two phase commit of said computer resource accessed by said user-defined operation, and, in response to performing a rollback of said transaction, including said user-defined operation in said rollback.

Thus, claim 1 is not taught or suggested by the Tandon patent or the Holenstein patent application, either alone or together.

Claims 10 and 19 are not taught or suggested by the Tandon patent or the Holenstein patent application, either alone or together, for at least the same reasons as were discussed with respect to claim 1.

Dependent claims 5-6, 8-9, 14-15, 17-18, 23-24, 26-27 incorporate the language of independent claims 1, 10, and 19 and add additional novel elements. Therefore, dependent claims 5-6, 8-9, 14-15, 17-18, 23-24, 26-27 are not taught or suggested by the Tandon patent or the Holenstein patent application, either alone or together, for at least the same reasons as were discussed with respect to claims 1, 10, and 19.

Claims 2-4, 7, 11-13, 16, 20-22, 25, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tandon (U.S. Patent No. 6,233, 587) in view of Holenstein et al. (U.S. Pub. No. 2004/0133591) and in further view of Kleewein et al (U.S. Patent No. 5,953,719). Applicants respectfully traverse.

Applicants submit that the Tandon patent and the Holenstein patent application do not teach or suggest the claimed subject matter. The Kleewein patent does not cure the defects of the Tandon and Holenstein patents. For example, the Kleewein patent does not teach or suggest extending a database transaction to include at least one user-defined operation that accesses a computer resource by means of a Transaction Protocol describing a two-phase commit application programming interface (API) that operates between a transaction manager and a resource manager for transaction processing distributed over computer systems by registering said user-defined operation with said database, wherein the user-defined operation enables a database operation to be extended with user-customizable features; executing said database transaction that includes said database operation; enabling said database to operate as said Transaction Manager by means of said Transaction Protocol, wherein said Transaction Manager manages distributed transactions by coordinating decisions about commit or rollback of pending transactions and coordinating failure recovery; accessing said resource manager by said database operating as said Transaction Manager; invoking said user-defined operation as part of said database transaction; recording with said database that said user-defined operation has been invoked; executing said invoked and recorded user-defined operation while executing said

database transaction; accessing said computer resource in response to executing said invoked and recorded user-defined operation by said resource manager, thereby extending said database transaction; in response to performing a commit of said database transaction, coordinating a two phase commit of said computer resource accessed by said user-defined operation; and in response to performing a rollback of said transaction, including said user-defined operation in said rollback.

Therefore, claims 1, 10, and 19 are not taught or suggested by the Tandon patent, Holenstein patent application or Kleewein patent, either alone or in combination.

Dependent claims 2-4, 7, 11-13, 16, 20-22, and 25 incorporate the language of independent claims 1, 10, and 19 and add additional novel elements. Therefore, dependent claims 2-4, 7, 11-13, 16, 20-22, and 25 are not taught or suggested by the Tandon patent, Holenstein patent application or Kleewein patent, either alone or in combination, for at least the same reasons as were discussed with respect to claims 1, 10, and 19.

Conclusion

For all the above reasons, Applicants submit that the pending claims 1-27 are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0460.

The attorney of record invites the Examiner to contact her at (310) 553-7973 if the Examiner believes such contact would advance the prosecution of the case.

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